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UNITED STATES INTELLIGENCE BOARD
COMMITTEE ON DOCUMENTATION

TASK TEAM VIII - PHOTO CHIP

Terms of Reference

I. OBJECTIVE

To determine the feasibility of and to make recommendations to CODIB regarding photo chip standardization in relation to the most effective, efficient and economical means of reproducing, exploiting, handling, exchanging, storing and retrieving photographic information (primarily aerial) for all organizations/agencies within the purview of the USIB. 1/

II. BACKGROUND

A. Photo Chip Applications: Several forms of chipped information have been developed over the past few years that are used to store images of both physical objects and textual data. Some forms, such as stereoscopic pairs, are used primarily to store images of physical objects of intelligence interest. We are not able at present to separate these forms by their applications to intelligence functions or by physical characteristics. However, varying requirements have resulted in the evolution of the following three generally different kinds of data bases:

1. Operational Data Base, e.g., the Navy Integrated Operational Intelligence System (IOIS).
2. Analytic Data Base, e.g., NPIC stereograms and comparative photo chips; SAC target analysis photo chips; FTD Technical Intelligence Photo Chip file.
3. General Reference Data Base, e.g., textual and graphic materials stored in photo systems, such as, Map Chips and Microfiche.

1/ USIB Charge to CODIB..."develop a standard Photo Chip, exploring the feasibility of adopting the recently developed DoD standard."

III. SCOPE AND APPROACH

A. The task team's main effort will be directed toward determining the current and potential value of photographic chips, with particular emphasis on aerial photography, and the advantages and disadvantages of chip standardization.

B. The team will operate as much as possible within the Intelligence Community, extending beyond as required to obtain those insights essential to the successful completion of the inquiry. General reference data base systems utilizing photo chips will be examined where there appears to exist commonality of purpose, size, or application with operational and analytic data bases. Document storage and retrieval systems, per se, are not the responsibility of the Photo Chip Task Team.

C. Much of this can be accomplished by an analysis of existing reports, but the team will request further information in the form of reports or briefings where gaps exist in data needed to make a critical evaluation of the various problems under consideration.

D. This will be supplemented by on-site inspections of Intelligence Community chip systems and tours of various firms engaged in technology pertaining to chip-handling equipment, chip content design, film emulsion chemistry, the physics of film bonds and bases, and the electronics, optics and mechanics involved in chip acquisition and interpretation.

E. The team will examine relevant aspects of both strategic and tactical intelligence systems. It will operate at security classification levels necessary to accomplish its mission. This means that the problem can probably be examined in its essentials within special control systems where "need to know" can be established.

IV. TASKS

The following broad tasks indicate major areas of concern to the task team's inquiry with questions under each major heading designed to open avenues of particular interest to the general Photo Chip problem.

A. Identify and describe existing Photographic Information (multi-sensor imagery ^{1/}) collection, processing and using systems at the National, Departmental and Operational levels.

Questions - What are the names, ages, and general functions of the various systems? Which ones are located within the Intelligence Community? Outside the Community?

^{1/} "Multi-sensor imagery," as used herein includes only image forming systems.

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What are the operating relationships between the group within the Community and the group outside? What are the interface relationships among those systems within the Community? Among those outside? What are the major uses made of photographic information--by the collector/processors? By the single-source producers? By the multi-source producers? By the users of various intelligence end products? By others?

B. Identify and describe existing Photo Chip systems at the National, Departmental and Operational levels.

Questions - What is the name, age and general function of each system? At what level or levels does it function? And, what are its production and functional responsibilities? How has each system worked over the past few years, and what are its prospects over the immediate and medium-term future? What are the present interface relationships among the various Photo Chip systems and with other intelligence information systems; and what are these likely to be in the future? What are the major uses made of Photo Chip systems? By the processor/producers? By the single-source producers? Multiple-source producers? By users of various intelligence end products?

C. Ascertain present and prospective intelligence requirements for photographic information and Photo Chips at the National, Departmental and Operational levels.

Questions - What are the needs of various users, both present and potential, for photographic information (imagery data) in general? What are the present and potential requirements for photographic information in Photo Chip form? What are the varying requirements for technical characteristics of any Photo Chip systems, such as, minimums and maximums for systems scales, installation area size, quality and the like? What are the critical differences (to intelligence users) in these areas, and the reasons therefor? What are the advantages and disadvantages of the Photo Chip form and of Photo Chip standardization? Where are Chips presently made? What is their distribution and use? How, where, and to what benefit could chipping lead to expanded use of photographic information?

D. Review existing exploitation policy and procedures for photographic information (imagery data).

Questions - What has been the general trend in the use of photographic information (imagery data), with emphasis on reconnaissance photography? What has been the general policy on the collection, control, dissemination and use of photographic information of various kinds, especially in regard to reconnaissance photography? How has this affected

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its use? What are the trends in these regards, and how might the possible broader use of reconnaissance materials bear on both technical characteristics of Photo Chip standardization and future policies regarding dissemination and use? What are the problems and concerns of general all-source analytic offices as distinct from processor/producers and special (single) source or single-purpose producers? What are the present means for making strategic photographic information (imagery data) available to general analysts and users? How adequate are these in terms of both present and prospective user needs? What means would be most effective in bringing these latter considerations to bear on task team deliberations?

E. Explore possible benefits from Photo Chip standardization.

1. Questions/(content value and use) - What changes might occur in the quality of photographic information (imagery data) in film form? in Photo Chip form? How might the dissemination, exchange and timeliness of photographic information (imagery data) be affected by Photo Chip standardization? How might Photo Chip standardization affect the extent of use for intelligence purposes? For other purposes? In what areas are we most likely to realize advantages from the more extensive use of Chipped photographic information (imagery data) as a part of the Community all-source analytic end-production effort?

2. Questions/(efficiency-economy) - To what extent might we expect Photo Chip standardization to lead to improvement in the overall effectiveness and efficiency of the Community intelligence effort? Where might these improvements occur? For what reasons? In what forms might these become evident? Money savings? Manpower savings? Greater productivity for the same cost?

3. Questions/(countervailing impacts) - What might be the countervailing considerations of Photo Chip standardization? Added cost for chip production, dissemination, use? Added cost from broader use of chipped photographic information? From more intensive use? What other difficulties might arise in development of Photo Chip standardization? How would the foregoing appear over the short-term? The long-term?

F. Explore the impact of constraining factors.

1. Questions/(technology) - What constraints might be encountered in present technology affecting collection, processing, distribution and use of photographic information

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carried in Photo Chip form? Where are the most critical constraining points likely to be found? What is the impact of each constraining point on the coverage, quality, timeliness and general availability of photographic information to the Intelligence Community? How do the foregoing bear on Photo Chip standardization? Size? Form? Design? Hardware? What are the trends in technology affecting the foregoing generally? What would be the impact of advancing technology on each of the constraint points? When might these occur?

2. Questions/(policy, security, customs, organization structure, exploitation capability) - In what ways might any of these affect the collection, processing, distribution and use of photographic information (imagery data) in Photo Chip form? For example, how might the present organizational structure of the Community affect the cost and utility of Photo Chip standardization?

3. Questions/(chemistry) - What are the constraints of present chemistry on the quality of photographic information, especially reconnaissance photography? How does this bear on the size and form of a Photo Chip? On the content value? On 2nd and 3rd, etc., generation quality and general file utility? What are the trends in chemistry related to photographic storage of information? What might be the timing and nature of future improvements? Mono? Stereo? Color? Black-White? Wet? Dry? Hot? Cold?

G. Prepare recommendations to CODIB.

V. MEMBERSHIP

All USIB agencies or their components having an interest in the preceding and an ability to contribute may be invited to participate.